UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,782	11/12/2003	Ping Jiang	312762004100	7794

25225 7590 01/23/2006

MORRISON & FOERSTER LLP
12531 HIGH BLUFF DRIVE
SUITE 100
SAN DIEGO, CA 92130-2040

EXAMINER	
SANG, HONG	

ART UNIT	PAPER NUMBER
1643	

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/712,782	JIANG ET AL.	
	Examiner	Art Unit	
	Hong Sang	1643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/9/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

RE: Jiang et al.

1. The information disclosure statement (IDS) filed on 8/9/2004 has been considered. A signed copy is attached hereto.

2. Claims 1-11 are pending and under examination.

Claim Rejections - 35 USC § 112, 2nd paragraph

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites the term "portions of said cells". The meaning of the "portions of said cells" is unclear. Does it mean "portions of the cell (cell fragment e.g. mitochondria, cell membrane)" or population of cells?

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3, 4, 6, 7, 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hadjantonakis et al. (Histochem. Cell Biol. 2001, 115: 49-58).

Claims are drawn to a method to recover one or more desired cells from a tissue sample, which method comprises separating one or more living cells, contained in the sample, that produce a first fluorescent protein from cells contained in the sample that do not produce said first fluorescent protein, thereby recovering one or more living cells that produce said first fluorescent protein. Claims are further limited wherein said separating is by surgical procedures, said separating is by fluorescent cell sorting, the first fluorescent protein is a green fluorescent protein or a red fluorescent protein, said one or more living cells recovered consists of a single living cell, further comprises subjecting the recovered one or more living cells that produce said first fluorescent protein to gene expression analysis, said cells contained in the sample that do not produce the first fluorescent protein produce a second fluorescent protein that emits a different wavelength from the first fluorescent protein.

Hadjantonakis et al. teach a method of isolating live GFP reporter-expressing cells from complex tissue by dissociation of the heterogeneous pool into single cells and subsequent flow sorting (page 56, Fig. 4). This involves the manual dissection cells and isolation of a region of interest harboring GFP positive cells, the subsequent enzymatic dissociation of the complex pool in order to produce individual cells, the live GFP positive cells are separated from live GFP negative cells by flow sorting (page 56, Fig. 4, and page 55, last paragraph). Hadjantonakis et al. teach that this methodology could be applied to any tissue or organ of interest. Hadjantonakis et al. further teach a

method of simultaneously isolating multiple different GFP reporter-expressing cells using mutually exclusive reporters e.g. yellow and cyan fluorescent reporters (see page 57, Figure 5 and 2nd paragraph, left column). Because fluorescence-activated cell sorting measures the GFP, which is a gene expression product of GFP gene, claim limitations have been met.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hadjantonakis et al. in view of Rashidi et al. (Clin. Exp. Metastasis 2000, 18: 57-60).

Claims 1, 3, 4, 6, 7, 10 and 11 and their interpretations are set forth above (see paragraph 6).

Claims 2, 5, 8 and 9 are drawn to a method of claims 1 wherein the cells that produce the first fluorescent protein are tumor cells, the tumor cells are metastatic tumor cells of the lung, bone, lymph node or liver, said cells that produce said first fluorescent protein are present in an immuno-compromised laboratory animal, further comprises identifying said cells that produce the first fluorescent protein by monitoring fluorescence and transferring said cells to additional immuno-compromised animals.

The teachings of Hadjantonakis et al. are set forth above as they applied to claims 1, 3, 4, 6, 7, 10 and 11 (see paragraph 6 above).

Hadjantonakis et al. do not teach that the cells that produce the first fluorescent protein are tumor cell, the tumor cells are metastatic tumor cells of the lung, bone, lymph node or liver, said cells that produce said first fluorescent protein are present in an immuno-compromised laboratory animal, further comprises identifying said cells that produce the first fluorescent protein by monitoring fluorescence and transferring said cells to additional immuno-compromised animals. However, these deficiencies are made up for in the teachings of Rashidi et al.

Rashidi et al. teach that the Lewis lung carcinoma cells transduced with GFP gene can be transplanted to nude mice using surgical orthotopic implantation. The *in vivo* GFP-expressing tumors were then harvested and implanted as tissue fragments by surgical orthotopic implantation in the right lung of additional nude mice. This model resulted in rapid orthotopic growth and extensive metastasis visualized by GFP-expression.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use the method of Hadjantonakis et al. to isolate living GFP expressing metastatic tumor cells and further transplant said tumor cells to an immunocompromised animals because Rashidi et al. teach that tumor cell can be transduced to express GFP *in vivo* and said GFP tumor cells can be transplanted to an immunocompromised animals and the metastasis of said tumor can be further visualized by fluorescent imaging (see Fig 1 and Fig. 2). One would have been

motivated to use the method of Hadjantonakis et al. to isolate living GFP expressing metastatic tumor cells and further transplant said tumor cells to an immunocompromised animals because Rashidi et al. teach that this is a very important useful model for metastasis, angiogenesis and therapeutic studies (see abstract, last sentence). Moreover, one of ordinary skill in the art would have a reasonable expectation of success to use the method of Hadjantonakis et al. to isolate living GFP expressing metastatic tumor cells and further transplant said tumor cells to an immunocompromised animals because Hadjantonakis et al. teach that their methodology could be applied to any tissue or organ of interest and Rashidi et al. teach how to transplant the GFP expressing tumor cells from an immunocompromised animal to another immunocompromised animals.

Conclusion

9. No claims are allowed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Sang whose telephone number is (571) 272 8145. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry R. Helms can be reached on (571) 272-0832. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hong Sang
Art Unit 1643
Dec. 13, 2005

LARRY R. HELMS, PH.D.
SUPERVISORY PATENT EXAMINER